ELL Reader

Science

Exploring the Oceans with *Alvin*

by Alice Cary





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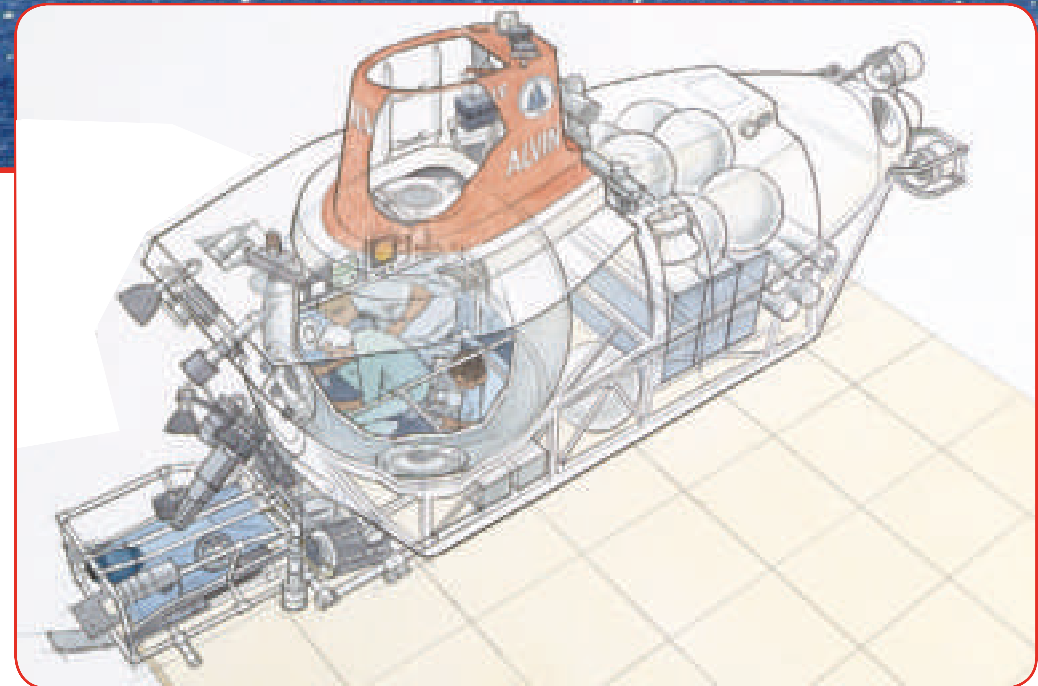
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How Do Scientists Explore the Oceans?

Meet *Alvin. Alvin* is a deep-sea submersible. To *submerge* is to go under water. *Submersible* means "able to go under water." Another meaning of *submersible* is "something that can travel under the surface of the sea."

Alvin is a tiny submarine with windows. It has room for only three passengers. *Alvin* can take scientists as deep as 14,764 feet under the sea. That is more than two and a half miles down!

Alvin began making trips in the 1960s. By now it has helped scientists with more than 4,000 underwater dives. It has helped people explore famous shipwrecks like the *Titanic.* It has helped scientists discover plants and animals.

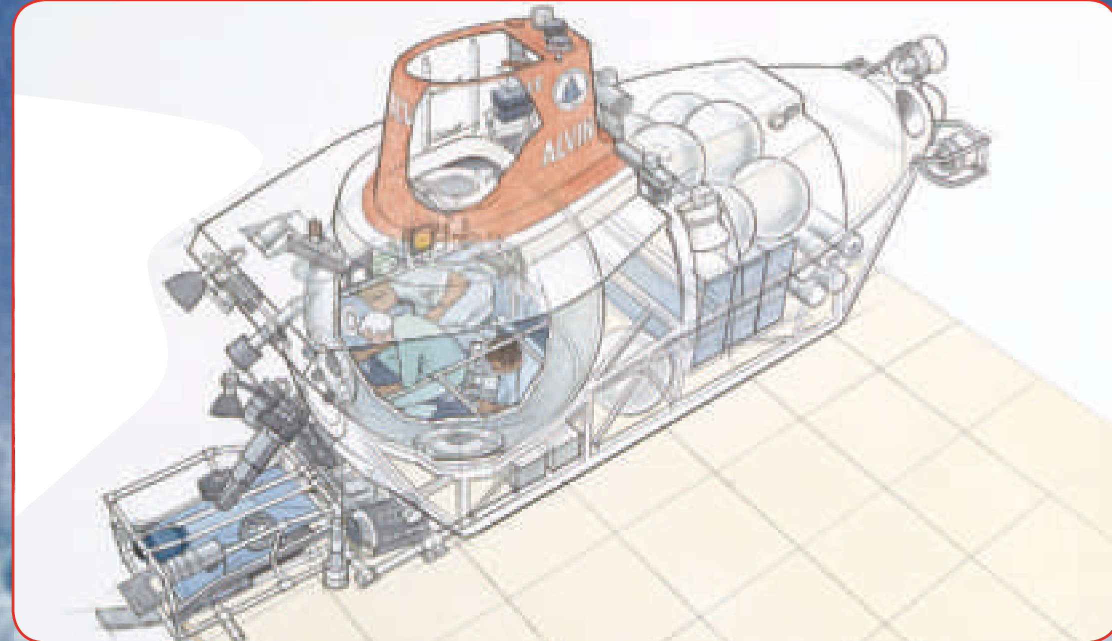
Alvin was named after Allyn Vine, who helped design and build the submersible. It is also named after a TV cartoon from the 1960s called *Alvin and the Chipmunks.*

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submarine: a kind of boat that goes underwater









Alvin's interior is so small that only one passenger at a time can stand up.

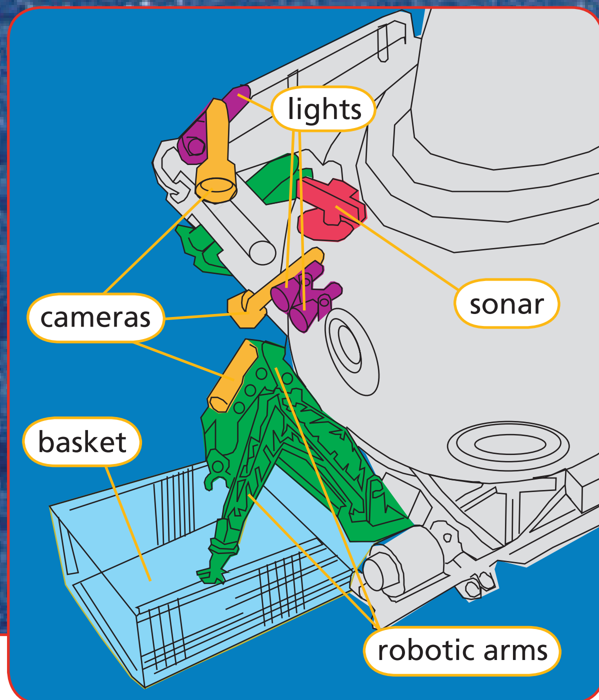


What Is It Like to Ride in Alvin?

A big ship carries *Alvin* out to sea. Then *Alvin* and its passengers are lowered into the ocean. *Alvin* is 12 feet (3.7 meters) high and 23.3 (7.1 meters) feet long. There is not much room inside. Scientists feel cramped. They do not even wear shoes! Shoes would just get in the way. Passengers also feel cold as they travel lower, or deeper, in the ocean. The cold ocean water makes *Alvin* chilly inside. Passengers bring warm layers of clothes.

Alvin usually takes one or two hours to travel to the ocean floor. Then *Alvin* can explore for four or five hours. The voyage back up to the ship takes another one or two hours. *Alvin*'s missions, or trips, usually take between six and ten hours.





How Does *Alvin* Work?

Scientists can see the bottom of the ocean through *Alvin*'s big window. *Alvin* has several cameras with lights. It needs lights because it is very dark so deep in the ocean. Alvin also has computers, an underwater telephone, and sonar, a piece of equipment that helps people locate objects under water. There are many measuring instruments such as thermometers.

Alvin has two long robotic arms. These can reach more than six feet. They can help collect samples from the ocean, such as a deep sea octopus and a fish called a dragon fish. The arms can also hold *Alvin*'s tools. The arms can lift as much as 150 pounds.

Alvin also has a large basket that can carry tools and samples. The basket can carry around 1,000 pounds.



Who Is *Alvin*'s Little Buddy?

One of *Alvin*'s most useful tools is named *Jason Junior. Jason Junior* is a remote-controlled underwater robot. It rides on *Alvin* in its own special place.

Jason Junior has its own light and cameras. It can explore smaller spaces where *Alvin* could not fit. For example, scientists can send *Jason* inside a shipwreck such as the *Titanic*. Scientists inside *Alvin* use controls to direct *Jason* from place to place.

Jason can take photos and movies and send them back to *Alvin.* A long cable connects *Jason* and *Alvin.* Because of the cable, *Jason* doesn't get lost.

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robot: a machine with moving parts controlled by computer

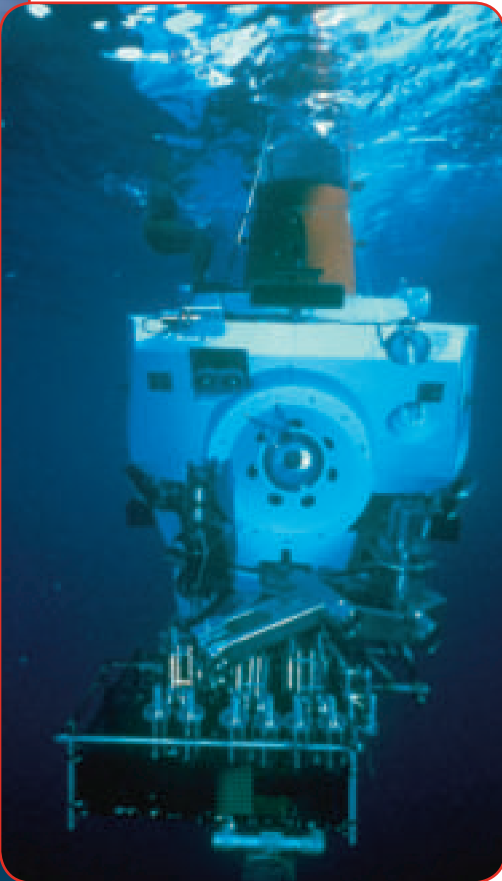
cable: a strong rope or wires wrapped together



What Adventures Has *Alvin* Had?

Alvin had quite an interesting year in 1967. During a dive in July, a swordfish attacked *Alvin*. The swordfish's "sword" got stuck in *Alvin.*

Later that summer, *Alvin* was exploring underwater canyons off the shores of New England. Scientists spotted a wreck under the water. The wreck turned out to be a United States Navy airplane that had crashed into the ocean in 1944. Luckily, the airplane's pilot had safely escaped the wreck.



In 1977, *Alvin* explored an area of hot springs deep under the ocean's surface. The scientists on *Alvin* were amazed to discover strange creatures there. They saw things such as giant tube worms, huge clams, and spider crabs. Before this trip, they did not know these animals lived there.

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swordfish: a large ocean fish with a bone that looks like a sword sticking out from its jaw

canyons: deep narrow valleys

Navy: the nation's group of ships and sailors trained for war





How Did *Alvin* Get Lost?

In October 1968, *Alvin* was lost for a while. The submersible was beginning a mission to study whales. The cable that connected *Alvin* to a ship broke. *Alvin* sunk to the bottom of the ocean. The pilot was able to escape safely.

Rescuing *Alvin* was difficult. Scientists did not have the equipment needed to lift *Alvin*. Finally, in September 1969, *Alvin* was pulled to shore.

Scientists were amazed to discover that food left on *Alvin* was still fresh so many months later. They realized that the cold temperatures and lack of oxygen kept the food from spoiling.

Alvin needed many repairs after being underwater for so long. *Alvin* did not make another dive until 1971.

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oxygen: a gas needed for breathing





A crane is needed to lower *Alvin* into the water and lift *Alvin* out of the water.







What Is Happening to Alvin *Today?*

Alvin has been busy exploring oceans around the world. Each year there have been new missions. Over the years, *Alvin* has had many repairs. In fact, every single piece of *Alvin* has been replaced! New, modern equipment and computers have been added.

Scientists are also working to build new submersibles that can go even deeper than *Alvin* and stay underwater longer than *Alvin* can. In fact, a new submersible is being built to replace *Alvin.* Scientists hope it will be ready to start exploring in 2008.

Who knows what other discoveries *Alvin* and other submersibles might make in the future?





Talk About It

1. How does *Alvin* help scientists explore the oceans?
2. Would you ever like to take a ride in a small submarine like *Alvin?* What would you like to see?

Write About It

3. Explain how *Jason Junior* is useful to scientists riding in *Alvin.* Draw your own diagram of *Alvin* and *Jason Junior.* Write about it on a separate sheet of paper.

Extend Language

A prefix can be added to the beginning of a word to make a new word. The prefix *sub-* means "under." The word *marine* can mean "of the sea." A *submarine* is a "ship that goes under the sea."

The word *way* can mean "a railway, or railroad." Does *subway* mean "a railway on the ground" or "a railway under ground"?

Illustration: 4 Jill Corron.

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